

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 21 APR 2006

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Applicant's or agent's file reference P14725PC00	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/DK2004/000114	International filing date (day/month/year) 20.02.2004	Priority date (day/month/year) 20.02.2004	
International Patent Classification (IPC) or national classification and IPC INV. H04N5/64 H04R1/34 H04R1/32 H04R5/02			
Applicant BANG & OLUFSEN A/S et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 19.12.2005		Date of completion of this report 21.04.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Fülöp, I Telephone No. +31 70 340-1963	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/DK2004/000114

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-14 as originally filed

Claims, Numbers

1-11 received on 21.12.2005 with letter of 19.12.2005

Drawings, Sheets

1/8-8/8 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☒ the claims, Nos. 12
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3,4,7,8,9,11
	No: Claims	1,2,5,6,10
Inventive step (IS)	Yes: Claims	
	No: Claims	1-11
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D2: PATENT ABSTRACTS OF JAPAN vol. 0144, no. 62 (P-1113), 5 October 1990
(1990-10-05) & JP 2 183158 A (HITACHI CONSTR MACH CO LTD), 17 July
1990 (1990-07-17)
D4: US-B-6 343 1351 (ELLERO LARRY ET AL) 29 January 2002 (2002-01-29)
D5: US-A-2 789 158 (LIVINGSTON MILTON S) 16 April 1957 (1957-04-16)
D6: DE 195 34 400 A (BLASER UWE) 20 March 1997 (1997-03-20)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1-2, 5-6 and 10** is not new in the sense of Article 33(2) PCT and the subject-matter of **claims 3-4, 7-9 and 11** does not involve an inventive step in the sense of Article 33(3) PCT.

- 2.1. **Document D6**, which, now, appears to be the closest prior art document, discloses all the features of independent claim 1 (see, especially, abstract corroborated with col.5, lines 33-36, col.5, lines 42-49 and figures 6-7).

Claim 1 infringes thus Articles 33(1) and 33(2) PCT.

- 2.2. The additional features of dependent **claims 2-8 and 10** are either disclosed by the prior art documents or constructional details well known to the skilled person:

- **claims 2, 5-8 and 10**: the features of these claims are well known in the art of movable / retractable loudspeakers and applied by the skilled person whenever necessary in order to solve the problem posed (see, for example, for **claims 7 and 8**
- documents D4 and D5 disclosing the use of an assembly as defined in claim 1 inside a wall partition or a TV set respectively). Moreover, the features of **claims 2, 5-6 and 10** are also disclosed in document D6.

- **claims 3 and 4:** the features of these claims are merely constructional details well known to the skilled person and applied, whenever necessary, in order to solve the problem posed.

Thus, the introduction of the features of the above listed dependent claims either singly or in combination into their respective independent claim would not seem to lead to an independent claim which would satisfy Article 33(3) PCT.

- 2.3. The subject-matter of **claim 9** differs from the loudspeaker assembly known from document D6 in that: "pressure sensors are provided ... such that if a predetermined minimum force is applied... the assembly will retract"

The technical problem to be solved by the present invention may therefore be regarded as how to protect the loudspeaker / acoustic lens assembly from damages resulted from coming into sudden contact with external forces.

The solution proposed in **claim 9** of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) due to the fact that, the skilled person, when faced with the above mentioned problem, will look into the field of acoustic lenses breakage prevention and will undoubtedly find document D2 (which discloses the same solution for the same technical problem - see abstract and figures) and will apply the teaching of this document to the loudspeaker assembly disclosed in D6.

Claim 9 infringes thus Articles 33(1) and 33(3) PCT.

- 2.4. Independent **claim 11** discloses, essentially, the combination of the features of independent **claim 1** and dependent **claims 2-10**. Therefore, the same reasoning, as set out in sections 2.1. - 2.3. of this argumentation, applies, mutatis mutandis, to the subject-matter of independent **claim 11**, which, consequently, is also not inventive in the sense of Article 33(3) PCT.

Re Item VIII

Certain observations on the international application: clarity (Article 6 PCT)

**INTERNATIONAL PRELIMINARY
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(SEPARATE SHEET)**

International application No.

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The use of the term "surrounding surface" in the wording of newly filed claim 1 introduces a lack of clarity concerning the exact scope of protection of this claim. It is in effect not clear to which "surface" reference is made and which technical features are suggested by the word "surrounding". Unfortunately, the description paragraphs suggested in the letter of reply do not help in understanding the exact meaning of the above mentioned term.

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Druckexemplar

CLAIMS

1. Loudspeaker assembly arranged in a surrounding surface, wherein the loudspeaker including an acoustic lens may be brought from a first non exposed position and into a second exposed position along an axis of movement, where the loudspeaker assembly comprises a transducer unit, means in the shape of for example motor means and optionally a gearbox for moving the loudspeaker in a linear movement from the first position to the second position and vice-versa, and a closure member integral with the loudspeaker assembly or being an integral part of the acoustic lens for covering the loudspeaker in its first position.

2. Loudspeaker assembly according to claim 1 characterised in that the means for moving the loudspeaker and the acoustical lens comprises one or more spindles which spindles in a first end are fastened to the transducer unit and/or the acoustic lens and in the other end is rotatably held for example by means of a bearing and a worm gearbox, such that the worm gear moves the spindles up or down in relation to the surroundings depending on the rotational direction of the worm gear thereby moving the loudspeaker and the acoustic lens between the first and second positions.

3. Loudspeaker assembly according to claim 1 characterised in that the means for moving the loudspeaker and/or the acoustical lens comprises one or more rails fastened to the surroundings, and that means are provided on the loudspeaker assembly for sliding along said rails, such that the loudspeaker assembly may be moved between the first and second positions.

4. Loudspeaker assembly according to claim 1 characterised in that the means for moving the loudspeaker and/or the acoustical lens comprises one or more moving racks optionally flexible racks fastened to the loudspeaker with corresponding gearwheels, such that by rotating the gearwheels the rack(s) and thereby the loudspeaker will move.

5. Loudspeaker assembly according to any preceding claim characterised in that the assembly is arranged in a vehicle, preferably in the dashboard, and/or doors, and/or the rear shelf.

5 6. Loudspeaker assembly according to any of claims 1 to 5 characterised in that the surroundings is the dashboard of a vehicle, and that the closure member is integral with a top section of the loudspeaker assembly and that the closure member is a cut-out section of the dashboard or at least made from the same materials and having identical texture as the dashboard, such that the assembly is invisible in its first position
10 and fully operational in its second position.

7. Loudspeaker assembly according to one or more of claims 1 to 6 characterised in that the assembly is built into a wall, for example the wall of a vehicle door, the wall of a building, or the like, and that the closure member is a moveable section of
15 the wall, which when the movement of the loudspeaker assembly is activated retracts, slides, pivots or in any other way moves concurrently with the movement of the loudspeaker assembly from the first position to the second position and vice-versa.

8. Loudspeaker assembly according to any preceding claim characterised in
20 that the surroundings are a television set, a hi-fi sound installation, or another loudspeaker or subwoofer.

9. Loudspeaker assembly according to any preceding claim characterised in that pressure sensors are provided in the assembly such that if a predetermined minimum force is applied to the assembly in its second position the assembly will retract to
25 its first position.

10. Loudspeaker assembly according to any preceding claim characterised in that the loudspeaker and/or the acoustic lens may be rotated around the axis of movement, and further may optionally be tilted around a second axis perpendicular to the
30 axis of movement.

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11. Automotive sound installation comprising a number of loudspeakers such as tweeters, midrange, bass, mid-bass and subwoofer and at least one loudspeaker assembly according to any of the preceding claims, characterised in that the sound distribution is controlled by a central unit, and that means are provided for optimising the distribution of sound between the loudspeakers in relation to the passengers in the vehicle, wherein the loudspeaker assembly is arranged in the dashboard of the vehicle, and that the loudspeaker assembly may automatically and optionally independently be adjusted for rotation, tilt and/or elevation for optimal sound distribution.

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